

Lower Yakima River Supplementation and Research Project

Operations and Maintenance

**Annual Report
2002 - 2003**



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Yakima Klickitat Fisheries Project

**Lower Yakima River Supplementation and Research Project
Operations and Maintenance
(Prosser and Marian Drain Facilities)**

ANNUAL REPORT
June 1, 2002 to June 30, 2003

Project Number 1996-013-25
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Contract Number 00006677

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LOWER YAKIMA RIVER
SUPPLEMENTATION AND RESEARCH
PROJECT
ANNUAL REPORT
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The Lower Yakima River Supplementation Complex has been working to increase the coho and fall Chinook populations with acclimation and use of local broodstock. Fish from Columbia River hatcheries are annually acclimated in strategic areas, and local adult returns are trapped to use as broodstock. The long-term goal is to phase the out of basin transfers out in favor of the local stock once the populations and facilities will allow.

The Yakama Nation (YN) have used early stock coho from lower Columbia river hatcheries to supplement Yakima River coho populations with in order to further natural production and harvest goals identified in the Yakama Nation's "Coho Salmon Species Plan for the Yakima River Basin" (CSSP). In addition, the YN will implement an experimental in-basin broodstock collection program to utilize natural returns of hatchery adults to improve the probability of success for the initial phase of coho restoration feasibility studies in the Yakima River basin.

Selected habitats and acclimation pond sites in the Yakima River basin have been identified for the potential reprogramming of adult and/or juvenile coho from appropriate lower river hatcheries. It is expected that when these fish return as adults they will spawn naturally in areas close to where they are released with the resulting production rearing in suitable production areas identified in the CSSP for about 17 months prior to outmigration. Similarly, juvenile releases would rear for up to one year in suitable production areas, then return after ocean migration to these same areas to spawn. Pre-smolts would be acclimated for one month in low cost ponds previously identified or those utilized in studies from prior years.

Two fall chinook sub-stocks have been identified as genetically distinct through electrophoresis in the Yakima River basin. One genetic stock of fall chinook spawns naturally in Marion Drain. Adult redd counts in the Drain have averaged 66 over the past 10 years. In FY'96, the Yakama Indian Nation (YN) began an experimental supplementation program to ensure survival of these important sub-stocks.

Marion Drain was constructed to return irrigation overflow and groundwater seepage to the Yakima River from agricultural lands located on the Yakama Reservation. It has a large component of high quality groundwater influence along with Toppenish Creek water and irrigation overflow. This unique water has allowed the Marion Drain fall chinook to survive and will also provide an acceptable water source for adult holding and smolt acclimation. Ground water was developed for egg incubation and early rearing.

Supplementation will occur by trapping adults returning to Marion Drain, spawning those adults, and acclimating and releasing the smolts at Zimmerman Ranch (RM14). A complete experimental facility has been developed at Zimmerman Ranch to accommodate all phases of fish culture for the Marion Drain sub-stock. A phased experimental approach is proposed to fully test the facilities and methods while the sub-stocks are being supplemented.

The other unique genetic stock resides in the mainstem Yakima River where the majority of spawning occurs below Prosser Dam from Mabton to the river mouth. This stock has been supplemented with out-of-basin upriver bright stock for several years. John Day Mitigation upriver bright fall chinook from Little White Salmon National Fish Hatchery have been planted annually each spring since 1983. Since 1994 the fall chinook have been acclimated at the Prosser Hatchery site. The new Prosser and Marion Drain Tribal Hatcheries allow the Yakama Nation to use locally adapted broodstock from the Yakima River and Marion Drain. The Prosser Adult Trap at Prosser Dam was utilized to collect broodstock from the Yakima River sub-stock. The adults were transported to the Prosser hatchery for holding and spawning, followed by incubation and early rearing.

Marion Drain/Yakima River experimental supplementation work was conducted by the YN in coordination with the Washington Department of Fish and Wildlife (WDFW) through the YKFP management framework. This Marion Drain/Yakima River supplementation scheme with a strong monitoring/evaluation component should greatly enhance fall chinook restoration in the Yakima basin.

Fish Production:

Coho

2000 Brood – Yakima Brood 40,000 released from acclimation ponds.
Willard Hatchery Brood 729,550 released from acclimation ponds.

2001 Brood – Yakima Brood 80,500 pre-smolts moved from Prosser Hatchery to acclimation sites for release.

2001 Brood - Willard Brood 614,035 pre-smolts moved from Willard Hatchery to acclimation sites for release.

2002 Brood- 55,681 fry currently being reared in the Lower Raceways at Prosser Hatchery.
Willard Brood 364,895 fry being reared in pond 1 at Prosser Hatchery.

Lower Yakima River Chinook

2001 Brood- Yakima Brood 427,753 smolts released from Prosser Hatchery.
Little White Brood 1,699,136 smolts released from Prosser Hatchery.

2002 Brood- Yakima Brood 143,023 reared and released from Prosser Hatchery.
Little White Brood 1,704,348 reared and released from Prosser Hatchery.

Marion Drain Chinook

2001 Brood- Marion Drain Brood 4,000 smolts released from Marion Drain Hatchery.
2002 Brood- Marion Drain Brood 20,000 reared and released from Marion Drain

Fish Culture: With multiple species and brood years reared at the Lower Yakima River facilities the fish culture had a wide range of activities during the year. Regular duties included: feeding fish, cleaning ponds and screens, monitoring water quality, monthly size samples, brood stock collection, weekly examination for adult ripeness, spawning and egg incubation, fry ponding, facility maintenance, and minor repairs to hatchery.

The coho were part of the YKFP reintroduction study. Since acclimation of Lower Columbia River stocks increased the adult population in the Yakima Basin, local brood is now being evaluated to determine the effectiveness for future supplementation. Prosser Hatchery (PH) was used for the local broodstock program. The adults can be captured on the right bank of Chandler Dam and held in one of the rearing ponds at PH. Eggs were incubated in chilled water ranging from 38°-57° well water. Survival from green eggs to eye continues to be lower than anticipated. This year fry were placed in the upper and lower raceways for initial feeding then transferred to the new raceways for tagging and rearing. Pre-smolts were then hauled to acclimation sites for final rearing and release. The coho acclimation ponds used are described below.

Lost Creek Located in the Upper Naches River near Cliffdell, consists of two ponds adjacent to the Naches River. Prior to putting fish in the ponds algae and other debris was removed. A seine net was pulled through the ponds and all debris hauled away from the site. The ponds were divided into two separate rearing areas by placing a screen in the ladder structure between the ponds.

Stiles Located near the town of Glee on private property about ½ mile from the Naches River. Prior to using the ponds the ditch needed to have weeds removed and minor cleaning of the ponds. The pond was excavated into two rearing ponds. Screens were placed at the head of the upper pond, between the two ponds and at an irrigation diversion.

Easton Ponds Easton Ponds are located adjacent to the Spring Chinook acclimation facility. They are privately owned and used annually for trout fishing. Easton Ponds were divided into two rearing areas by placing screens at the outlet of each. The lower pond outlet needed to be cleaned of garbage and beaver dams to allow water flow and fish passage.

Holmes Pond Located near Ellensburg, the site was selected for coho supplementation work because of its location in the watershed, proximity to the main stem Yakima River, and large source of cool, clean water. The existing ponds give us the rare opportunity to control flows and monitor out-migration of coho smolts at existing structures. The location is located in an area that is suitable to accommodate high numbers of

spawning adult coho salmon. In addition to the properties benefits for coho production, the property also hosts outstanding habitat features. A side channel of the Yakima flows through 2400' of the property, entering the river only 400' below the downstream property boundary. Wetlands and riparian habitat are also featured. The property also includes a large, senior water right that could be placed in the Yakima Basin Water Trust. At present the water is used for irrigation to support livestock grazing. The instantaneous water right, now adjudicated, is 3.31 cubic feet per second.

The property is an excellent opportunity for the coho program and recovery efforts. The Holmes property offers the coho program an excellent chance at successful coho acclimation and future coho recovery in the upper Yakima River.

The Yakima River fall chinook broodstock were collected from Chandler Canal. The canal was shut down for one day on October 21, to allow YN staff the opportunity to remove salmon trapped in the canal. Most of the fish are returned to the river but some are held at Prosser Hatchery for broodstock. The fish were a continuation of the accelerated growth study to determine the difference in survival of early released smolts compared to conventional releases. The accelerated fish were incubated and reared in warmer water in attempt to have the fish smolt earlier than the conventional releases to determine the success of fish migrating prior to any thermal block, that can occur in the lower Yakima River. All fall chinook reared at Prosser were volitionally released at strategic times directly from the PH facility.

Marion Drain Fall Chinook broodstock were again collected with a fish wheel in the Drain. The fish are reared until smolts at the Marion Drain facility and released directly to the Drain. A portion of the fish were PIT tagged to monitor the survival and determine the contribution to the naturally spawning population.

Fish Health: Pathologist from the U.S. Fish and Wildlife Service are under contract to monitor the fish health. They travel from the Lower Columbia River Fish Health Center, located at Spring Creek Hatchery, monthly to examine fish at all sites. They also take samples from the broodstock during spawning. No disease outbreak occurred with any fall Chinook this year and the broodstock did not have signs of any virus. The coho reared on river water at Prosser broke out with severe gill disease in June and July. They were treated with chemicals but again we experienced heavy loss during this period. Water quality is poor this time of year and it has been suggested to use well water for these periods.

Vehicle Maintenance: Eight GSA vehicles were leased for this project. One vehicle was used by the tribal biologist for site visits and traveling to meetings. Another vehicle was assigned to the maintenance technician to transport tools and supplies to work sites. The other vehicles were used by fish culturist for two hatcheries and various acclimation ponds. Regular oil changes and maintenance was performed under the GSA contract. Most repairs were covered under the vehicle warranty.

Maintenance: Two full time Maintenance Technicians take care of the repairs and fabrication needed for the YKFP programs. The facilities that they maintain are: Prosser Hatchery, Marion Drain Hatchery, all fall Chinook and coho acclimation sites, Wahkiakus (Klickitat Field Office), and Castile Falls. They also work with the following M&E Biologists, where they repair and/or fabricate items as needed: Coho M&E, Fall Chinook M&E, and Spring Chinook M&E.

Training: Training for the staff this year has been mainly on the job training. Because of budget constraints no conferences were attended and travel was eliminated for any tours.

Miscellaneous: Prosser Hatchery - The top portion of the bird netting covering the three rearing ponds was replaced. The existing net was destroyed in a heavy wind storm. The new raceways are lined with a PVC material that requires constant repairs. The canal which supplies the river water to the hatchery was shut down for annual repairs in October so the water was pumped from the bottom of the canal to the hatchery. Improvements to Prosser Hatchery include: a settling pond, an effluent pond, the spawning area was enclosed, and a pole building for storage/security.

Meeting and Tours: Regular meetings for the staff include the monthly policy group and bi-weekly fishery staff meetings. The staff also meets with members of STAC to update and coordinate fish rearing objectives. The USBOR schedules tours for schools to visit the PH to get an understanding of what is being done in the Yakima river for salmon enhancement. Following is a list of the tours this past year: 6/3/02 Ridgeview School – 3rd grade – 80 students; 6/10/02 Grandview Middle School – 2nd grade – 60 students; 7/10/02 Boy Scouts tour – 5-12 years – 100 students; 4/10/03 Home School – 15 students; 4/23/03 Mt. Hood Community College – 20 students; Kirkwood Toppenish School – 70 students; 5/8/03 St. Joe Marquette – 45 students; People from the Smithsonian – 10 people; WSU Research Facility – 2; 5/13/03 Teachers from throughout the valley – 35; 5/14/03 Highland High School – 30 students; 5/15/03 Toppenish – 2nd grade – 70 students; 5/18/03 Boy Scouts – 10 students; 5/21/03 Sunnyside – 100 students; 5/22/03 La Salle – 40 students; 5/27/03 Grandview – 60 students; 5/29/03 Wapato Middle School – 5th and 6th grade – 100 students; 6/0/03 St. Pauls – 40 students; and 6/10/03 Prosser High School – 40 students.

Personnel: The project employs: two full time Biologists - Bill Fiander and Joe Blodgett ; one Fish Culturist IV,- Michael Fiander (finishing up at Mt. Hood Community College, will return July 03); six Fish Culturist II's - Robert Gleason, Carrie Skahan, Bill Morago, Arlene Heemsah, Oliver Davis and Eva Carl; and two Maintenance Technicians - Travis Hull and Chuck Carl. Since there is no housing on station at Prosser, the facility has personnel on duty 24 hours every day. Two full time Culturist II are night shift and one is scheduled swing shift. Marion Drain has one house on station where Robert Gleason resides as the caretaker for the hatchery.